



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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re application of:
David S. Pecora

Serial No.: 09/854,206

Filed: May 11, 2001

For: **ETCH OF SILICON NITRIDE SELECTIVE TO
SILICON AND SILICON DIOXIDE USEFUL
DURING THE FORMATION OF A
SEMICONDUCTOR DEVICE**

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§ Group Art Unit: 1765
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§ Examiner: Binh X. Tran
§
§ Atty. Docket: 00-0737.00/US
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§ Paper No. 7
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January 21, 2003

Date

John D. Hunter
Signature

RESPONSE TO THE OFFICE ACTION OF AUGUST 19, 2002

Please enter the following in response to the Examiner's final office action mailed August 19, 2002.

In the Specification

Please amend paragraph [0015] to the form indicated below.

Sub C1
B1

-- The structure of FIG. 1 is subjected to an inventive etch as described above. An exemplary etch includes processing the wafer in a chamber of an AME5000 etch chamber. After placing the wafer substrate assembly in the etch chamber, O₂ and CHF₃ or CH₂F₂ are introduced into the chamber at flow rates of about 60 sccm and about 20 sccm respectively. Pressure is maintained at between about 30 millitorr and about 40 millitorr, and a power of between about 300 watts and about 400 watts is utilized. At a chuck temperature of about 10°C and a sidewall temperature of about 20°C, the silicon nitride will etch at a rate of about 720Å/min in the vertical direction, and about 180Å/min in the horizontal direction. Generally, the vertical:horizontal etch rate will be about 4:1. For the 525Å thick layer of silicon nitride depicted in FIG. 1, the etch is performed in the absence of a photoresist layer for between about 35 seconds and about 60 seconds which results in the structure of FIG. 2. Spacers 32 having a width of about 300Å to about 400Å are formed. --